

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-278408

(43)Date of publication of application : 06.10.2000

(51)Int.Cl. H04M 3/42
H04M 3/20
H04M 11/00

(21)Application number : 11-084886 (71)Applicant : NEC CORP

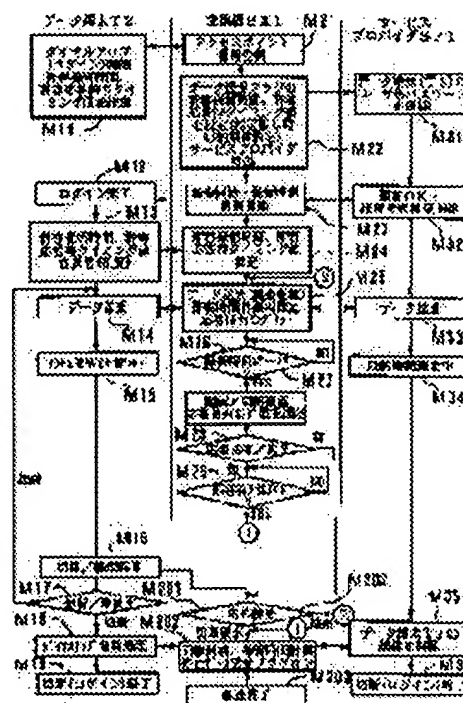
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(54) ACCESS HOLD MONITORING METHOD FOR DIAL-UP CONNECTION

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent a user from being charged wastefully by monitoring the hold of access between a terminal and a service provider with an exchange and performing a notice for calling decision on disconnection or continuation from the exchange to the terminal, when the access is held continuously for a prescribed threshold time.

SOLUTION: Data are exchanged (M14, M25 and M33) between a data terminal T2 and a service provider SP1. During this data exchange, an exchange EX1 resets a measured hold time, namely, resets the hold time, starts remeasurement and resets a response wait timing (M25). While the data terminal T2 is under access holding (M15), the exchange EX1 continuously counts the hold time and when allowable hold time is over (M26), the confirmation request of whether that connection is to be cut or to be continued is transmitted to the data terminal T2, and the monitor of response wait timing corresponding to this request is started (M27). The user returns the response for either continuation or disconnection, from the terminal T2 to the exchange EX1 (M16).



LEGAL STATUS

[Date of request for examination] 02.03.2000

[Date of sending the examiner's decision of rejection] 24.07.2001

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the prevention technique of unnecessary connection especially with respect to the access hold monitor approach in dialup connection.

[0002]

[Description of the Prior Art] Drawing 4 is a flow chart which shows the various processings in the data terminal T2 (sending agency) in dialup connection, the conventional exchange EX1, and a conventional service provider SP 1. In the former, if a user starts dialup connection from a data terminal T2 as shown in this drawing (step S11), the exchange EX1 will receive the number of an access point AP 1 from this data terminal T2 (step S21), and will call a service provider SP 1 (step S22). On the other hand, a user name and a password are checked (step S31), if authentication is O.K., measurement of a connect time is started (step S32), and the exchange EX1 starts accounting (step S23), and a log in completes a service provider SP 1 (step S12).

[0003] A user transmits [and] and receives data between a data terminal T2 and a service provider SP 1 by exchange EX1 course (steps S13, S24, and S33). At this time, even when the user has suspended access (interruption), (step S14) and the exchange EX1 continue accounting (step S25), and the service provider SP 1 is continuing measurement of a connect time (step S34).

[0004] Here, when connection with a voice message and a service provider SP 1 is being made with one subscriber line, a voice message cannot cut a circuit, unless a silent condition also has a disconnect request from an origination side, or a disconnect request from a destination side as the exchange EX1 for a certain reason. However, there is a case which does not notice a circuit hold but is left as it is after a user's connecting with a service provider, and the time amount will become useless accounting for a user.

[0005] In this condition, if the user who has noticed it being in a connection condition starts dialup cutting processing from a data terminal T2 (step S15), the exchange EX1 will carry out circuit release (step S26), and will end accounting (step S27). Moreover, a service provider SP 1 cancels connection of a data terminal T2 (step S35), and ends measurement of a connect time (step S36).

[0006] This invention was not made in view of the trouble mentioned above, and aims at offering the access hold monitor approach in the dialup connection which is not made in accounting with a useless user.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, when the access hold between a terminal and a service provider is supervised by the exchange and an access hold continues [predetermined threshold time amount] as the 1st means, by this invention, a means to perform the notice which stimulates cutting or decision of continuation from the exchange to a terminal is adopted.

[0008] Moreover, as the 2nd means, when there is no response to said notice from a terminal in before the predetermined response latency time in the 1st means of the above, a means to cut the dialup connection of a terminal and a service provider compulsorily is used for the exchange.

[0009] [0010] which adopts a means to set both threshold time amount, or response both [either or] as the exchange from a terminal with a command, in the 1st or 2nd means of the above as the 3rd means [Embodiment of the Invention] Hereafter, with reference to a drawing, 1 operation gestalt of the access hold monitor approach in the dialup connection concerning this invention is explained.

[0011] Drawing 1 is the block diagram showing the functional configuration of the dialup connection system by which this operation gestalt is applied. As shown in this drawing, a user has the voice message terminal T1 and a data terminal T2. These voice message terminal T1 and a data terminal T2 are connected with the exchange EX1 through the subscriber's loop L1, and the exchange EX1 is connected to the service provider SP 1 through the access point AP 1. The fundamental function of each [these] component is a well-known thing, and omits still more detailed explanation here.

[0012] Next, this operation gestalt is explained to a detail with reference to the flow chart shown in drawing 2. In addition, in the following explanation, it explains in full detail from a data terminal T2 about the case where dialup connection is made, to a service provider SP 1.

[0013] In this case, a user starts dialup (log in) using a data terminal T2 (step M11). Under the present circumstances, when judging that a user is required, permissible holding time and the waiting timing value for a permission response can be specified. The specified value is set up, when the exchange EX1 receives the number (telephone number) of an access point AP 1 (step M21), and sets the data transmission-and-reception flag corresponding to the subscriber's loop and the user specifies permissible holding time and the waiting timing value for a permission response by initiation of this dialup (step M21). In addition, when there is no assignment of permissible holding time and the waiting timing value for a permission response, the exchange EX1 sets up the initial value which oneself has memorized.

[0014] And the exchange EX1 calls a service provider SP 1 by access point AP1 course (step M22). A service provider SP 1 checks the user name and password of a data terminal T2 (step M31), and measurement of a connect time is started at the time of Authentication O.K. (step M32). Moreover, in this authentication O.K., the exchange EX1 starts measurement of holding time in an accounting initiation list (step M23), and a data terminal T2 completes a log in (step M12).

[0015] Thus, if a log in is completed, a user will demand a setup of permissible holding time and the waiting timing value for a permission response of the exchange EX1 using a command from a data terminal T2 (step M13). And the exchange EX1 sets permissible holding time and the waiting timing value for a permission response as oneself to this demand (step M24). Then, data transmission and reception are performed between a data terminal T2 and a service provider SP 1 (steps M14, M25, and M33).

[0016] The exchange EX1 resets the waiting timing for a response while transmission and reception of this data are performed, and it resets resetting, i.e., holding time, for measurement holding time and starts re-measurement (step M25). While a data terminal T2 is access suspending (step M15) (access interruption), the exchange EX1 counts holding time continuously, and when permissible holding time is exceeded (step M26), while transmitting the acknowledge request of whether the connection concerned is cut or to continue to a data terminal T2, the monitor of the prompt timing to this demand is started (step M27).

[0017] the user who received the above-mentioned acknowledge request -- the continuation from a data terminal T2 -- or the exchange EX1 is answered in the response of cutting (step M16). In continuation directions, the exchange EX1 resets holding time measurement according to the response result from this user (step M201) (step M25), and, in the case of disconnect indication, release processing of a circuit is performed (step M202).

[0018] the time of on the other hand carrying out a prompt time-out supposing possibility of forgetting to return a cutting processing failure and response of a user although it waits for the exchange EX1 to a permission prompt timing value when continuation/cutting response is not answered from a data terminal T2 (step M28) -- (step M29) -- circuit release is started compulsorily (step M202). The exchange EX1 stops holding time measurement at the time of this circuit release, clears the data transmission-and-reception flag corresponding to a circuit, and ends accounting (step M203).

[0019] On the other hand, a data terminal T2 shifts to (step M17) and dialup cutting processing, when

disconnect indication is transmitted to the exchange EX1 (step M18), and it is logging off (step M19). Consequently, a service provider SP 1 cancels connection of a data terminal T2 (step M35), and ends measurement of a connect time (step M36).

[0020] Next, other operation gestalten of this invention are explained with reference to drawing 3. In addition, in this drawing, about the same processing as processing of the above-mentioned operation gestalt, the same sign is attached and explanation is omitted.

[0021] In addition to the above-mentioned permissible holding time and the waiting timing for a permission response, with this operation gestalt, the permission retry value of holding time executive routine is specified at the time of initiation of the dialup connection in a data terminal T2 (step M11a). On the other hand, the exchange EX1 sets the permission retry value specified by this user as oneself (step M22a). And also after the completion of a log in (step M12), with a command, a data terminal T2 can transmit a permission retry value to the exchange EX1 (step M13a), and can set this permission retry value as the exchange EX1 (step M24a).

[0022] and -- if prompt timing carries out the time-out of the exchange EX1 after that (step M29) -- a permission retry -- a ***** [being exaggerated] -- judging (step M204) -- time a retry is possible -- a holding time monitor -- a retry -- carrying out (step M25) -- a retry -- when exaggerated, it shifts to cutting processing. This operation gestalt is the approach of taking a check by the failsafe supposing the case where the directions response of cutting/continuation is overdue from a data terminal T2.

[0023]

[Effect of the Invention] As explained above, the access hold monitor approach in the dialup connection concerning this invention does the following effectiveness so.

[0024] (1) Since the notice which stimulates cutting or decision of continuation from the exchange to a terminal is performed when the access hold between a terminal and a service provider is supervised by the exchange and an access hold continues [predetermined threshold time amount], while a user does not know, it can prevent that excessive accounting is collected. Moreover, since an unnecessary line connection is controlled, the subscriber's loop and a connection circuit with a provider can be employed efficiently.

[0025] (2) Since the exchange cuts the dialup connection of a terminal and a service provider compulsorily, the response from a terminal can be overdue, or when there is no response to said notice from a terminal in before the predetermined response latency time, when there is nothing, it can cancel connection of a circuit by initiative of the exchange.

[0026] (3) Since both threshold time amount, or response both [either or] is set as the exchange from a terminal with a command, the convenience of the supervisory services of the access hold by the exchange improves.

[Translation done.]

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CLAIMS

[Claim(s)]

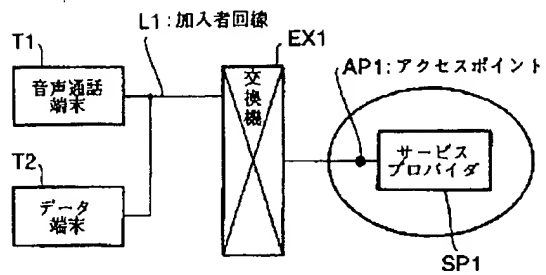
[Claim 1] The access hold monitor approach in the dialup connection characterized by performing the notice which stimulates cutting or decision of continuation from the exchange to a terminal when the access hold between a terminal and a service provider is supervised by the exchange and an access hold continues [predetermined threshold time amount].

[Claim 2] It is the access hold monitor approach in the dialup connection according to claim 1 characterized by the exchange cutting the dialup connection of a terminal and a service provider compulsorily when there is no response to said notice from a terminal in before the predetermined response latency time.

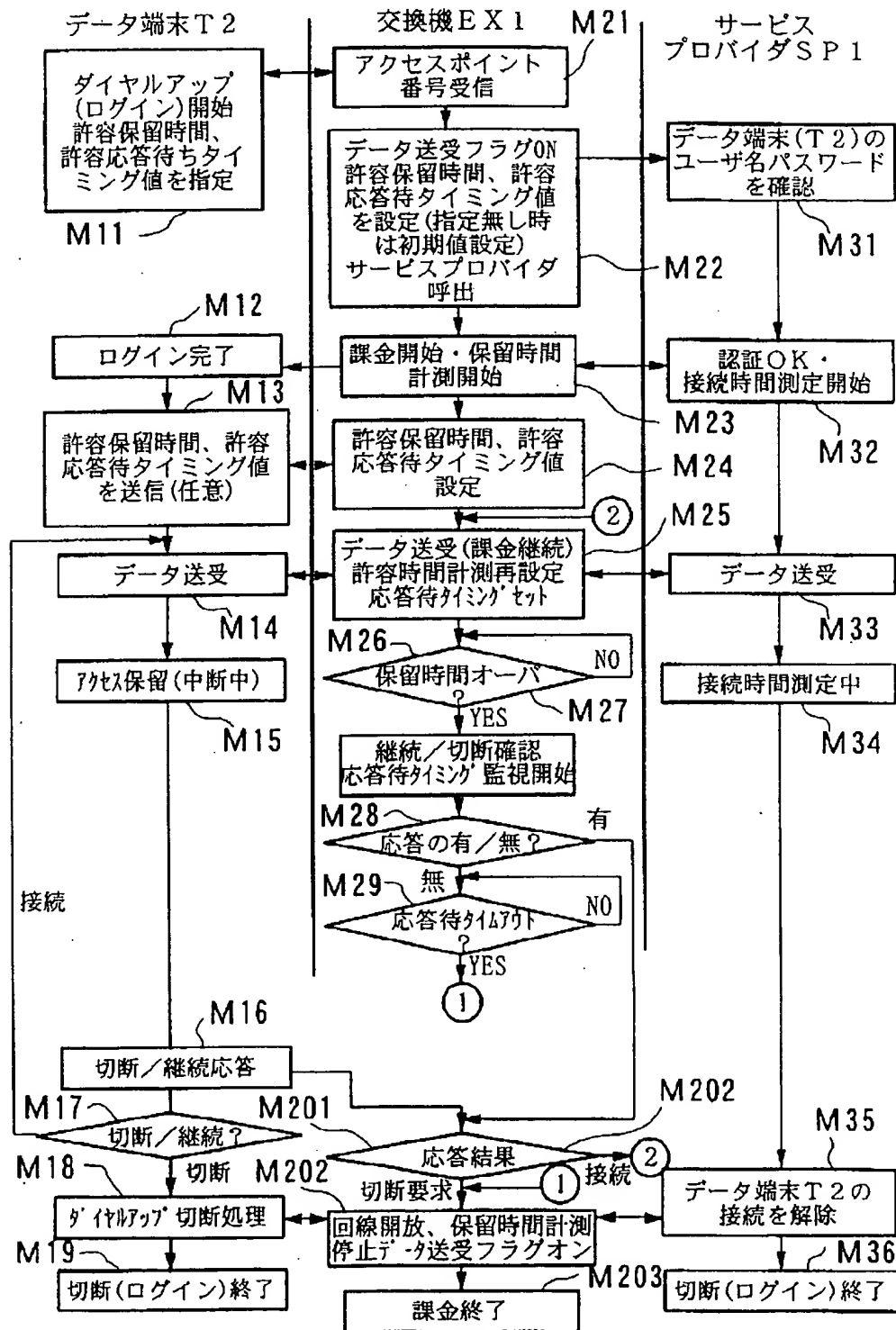
[Claim 3] The access hold monitor approach in the dialup connection according to claim 1 or 2 characterized by setting both threshold time amount, or response both [either or] as the exchange from a terminal with a command.

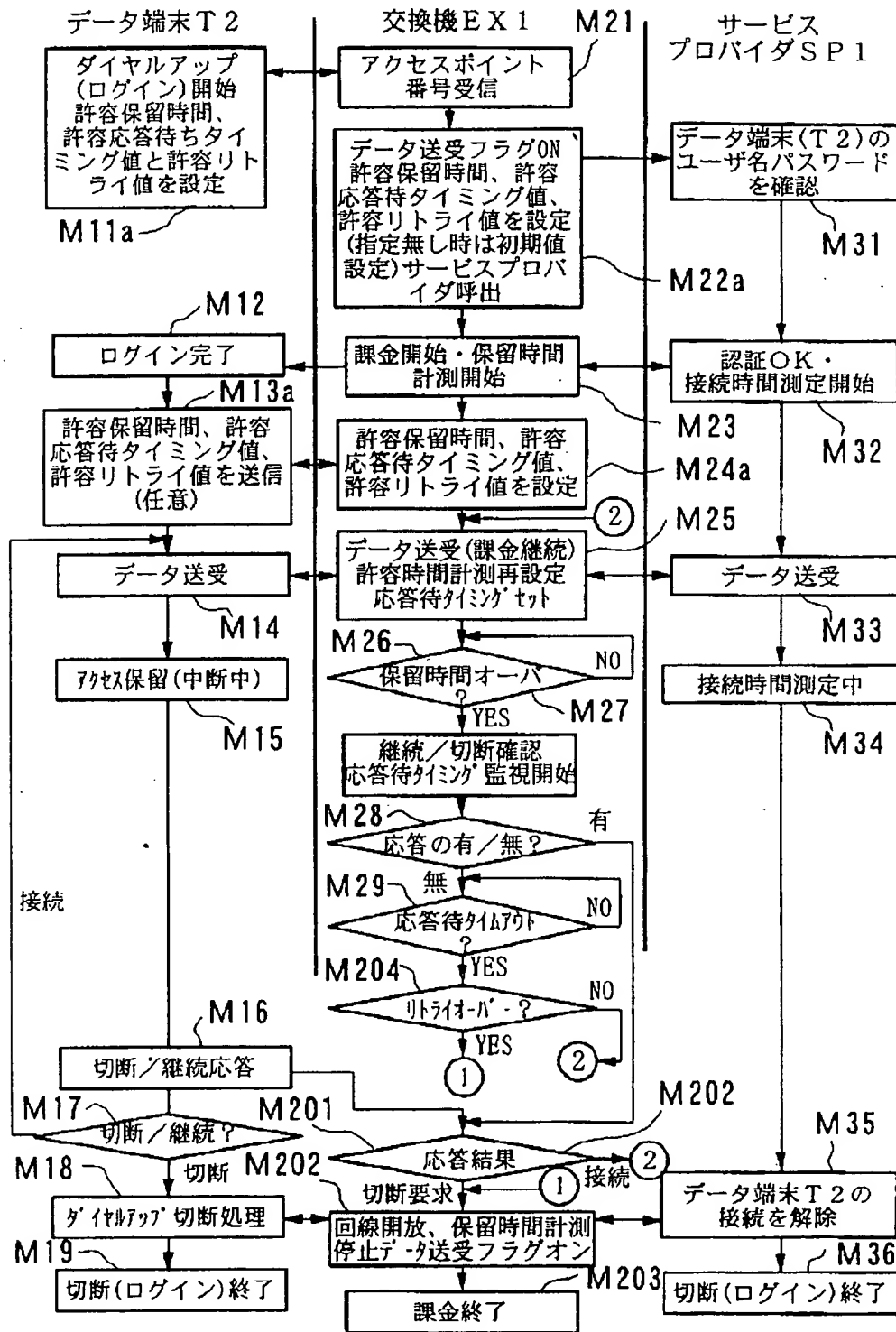
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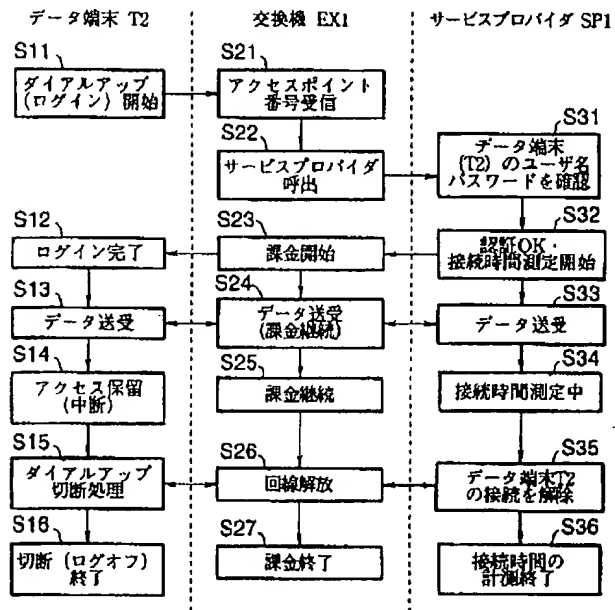
Drawing selection drawing 1



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